After the line beginning "Tadg15" and ending "DWIKENTGV~ ~~~~~~~~~~ ~~", please insert --(SEQ ID No: 2)--.

After the line beginning "Scce" and ending "R~~~~~~~~~ ~~", please insert --(SEQ ID No: 4)--.

After the line beginning "Try" and ending "S~~~~~~~~~ ~~", please insert --(SEQ ID No: 5)--.

After the line beginning "Chymb" and ending "PWVQKILAAN ~~~~~~~~~~ ~~", please insert --(SEQ ID No: 6)--.

After the line beginning "Fac7" and ending "PRPGVLLRAP FP", please insert --(SEQ ID No: 7)--.

After the line beginning "Tpa" and ending "DWIRDNMRP~ ~~~~~~~~~~ ~~", please insert --(SEQ ID No: 8)--.

Please amend Figure 2 as follows:

After the line ending "R D W I K E N T G V", please insert --(SEQ ID No: 2)--

After the line "3121 TTCTTTTTAAAAAAAAAAAAAAAAAA", insert --(SEQ ID No: 1)--.

Please amend Figure 3 by inserting --(SEQ ID No: 2)-- after the line "851 ENTGV".

Please amend Figure 11 as follows: In the line beginning "hTADG15 ENTGV*" and ending "900", after "ENTGV*", please insert --(SEQ ID No: 2)--.

In the line consisting of "mEpithin HP", after "HP" please insert --(SEQ ID No: 10)--.

Please amend Figure 12 as follows:

On the bottom of page 1, please replace FIGURE 12-1 with --Figure 12--

On page 2, after the line ending "3147", please insert --(SEQ ID No: 1)--.

On page 2, after the line ending "2900", please insert --(Seq ID No: 9)--.

On the bottom of page 2, please replace FIGURE 12-2 with --Figure 12 (continued)--

REMARKS

Objections to the Oath or Declaration

A replacement Combined Declaration and Power of Attorney is enclosed herewith. The Applicants respectfully request that the objection to the oath or declaration be withdrawn.

Objections to the Drawings

The drawings are objected to for various informalities. Figures 1, 2, 3, 11 and 12 have been amended herein. The changes to the figures are indicated in red on the enclosed copies and have only been made to introduce sequence identifiers into Figures 1, 2, 3, 11 and 12. Formal drawings will be submitted upon acceptance of the instant application.

Objections to the Specification

The abstract has been objected to for not making reference to the claimed invention. This objection is respectfully traversed. The abstract has been amended to include the sentence --The instant invention also includes a kit containing antibodies for the detection of TADG-15 protein.-- Since, as amended, the abstract describes the instant invention, the Applicants respectfully request that the objection to the abstract be withdrawn.

The title has been objected to as not descriptive. This objection is respectfully traversed. The title has been amended herein. Therefore, the Applicants respectfully request that the objection to the title be withdrawn.

The disclosure has been objected to because the brief description of the figures lacks separate descriptions of Figures 12-1 and 12-2. This objection is respectfully traversed.

Figure 12 is improperly labeled as Figure 12-1 and 12-2. Figures 12-1 and 12-2 simply refer to the first and second pages of the same figure. Figure 12 has been amended herein to replace "Figure 12-1" with --Figure 12-- and "Figure 12-2" with --Figure 12 (continued)--. These changes are indicated in red on the enclosed copy of Figure 12. As such, the brief description of the figures is correct as is. Therefore, the applications respectfully request that this objection to the disclosure be withdrawn.

The 35 USC §112 Rejection

Claims 22-24 stand rejected under 35 USC §112, second paragraph, as indefinite. This rejection is respectfully traversed.

First of all, the Examiner states that the recitation "TADG-15" in claims 22 and 24 is vague and indefinite. Therefore, claims 22 and 24 have been amended herein to include the full name of the protein, i.e. Tumor Antigen Derived Gene-15. The Examiner also states that the recitations "fragment thereof" in claims 22 and 24 is vague and indefinite. Therefore, amendments

have been made herein to delete this recitation from claims 22 and 24. As amended, claims 22 and 24 are no longer vague and indefinite. Therefore, the Applicants respectfully request that the 35 USC §112, second paragraph, rejection of claims 22-24 as indefinite be withdrawn.

The 35 U.S.C. §103 Rejections

Claims 22-24 stand rejected under 35 U.S.C. §103(a), as unpatentable over GenBank Accession Number **W22987** (October 8, 1997), in view of **Lerner** (Nature 299:592-596, 1982). This rejection is respectfully traversed.

W22987 describes the sequence of a serine protease expressed in the human colon carcinoma cell line COLO 201. This serine protease is identical to amino acids 615-855 of TADG-15. **Lerner** describes methods of generating antibodies of predetermined specificity to various antigens. The Examiner contends that it would be obvious to use the teachings of **Lerner** to generate an antibody against all or part of **W22987** to obtain an antibody against TADG-15 to incorporate into the kit of the instant invention. The Applicants respectfully disagree.

Claims 22 and 24 explicitly state that the antibody in the kit is "specific for TADG-15." An antibody raised against **W22987** would not fit this criterion. Amino acids 615-815 correspond to the serine protease domain of TADG-15. As evidenced by Figure 1 of the instant specification, this domain is highly homologous to a number of other known serine proteases. Thus, this would not be the best segment to use to obtain an antibody specific for TADG-15. TADG-15 contains a number of domains which are not present in either **W22987** or the other serine proteases of Figure 1. Therefore, given the knowledge that TADG-15 is 100% identical to another known protease starting after residue 615, it would be obvious that an antibody specific for TADG-15 must be generated from amino acid sequences before 615. Also, the Examiner seems to be implying that **W22987** is a fragment of TADG-15. However, no evidence or suggestion that this is the case can be gleaned from the combination or **W22987** and **Lerner**. Rather, **W22987** presents the protein as a small, complete protease. However, even if it is a fragment of a larger protease, there is no suggestion that it is a fragment of TADG-15. Therefore, the applicant respectfully requests that the 35 U.S.C. §103(a) rejection of claims 22-24 under

as unpatentable over GenBank Accession Number **W22987** in view of **Lerner** be withdrawn.

This is intended to be a complete response to the Office Action mailed June 29, 2000. If any issues remain outstanding, the Examiner is respectfully requested to telephone the undersigned attorney of record for immediate resolution.

Respectfully submitted,

Date: Oct 27, 2000

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DOCKET NO: D6064CIP

COMBINED DECLARATION AND POWER OF ATTORNEY

Timothy J. O'Brien and Hirotoshi Tanimoto, as below-named inventors, hereby declare that our residences, post office address and citizenship are as stated below next to our names; we believe we are the original, first and joint inventors of the subject matter which is claimed and for which a patent is sought on the invention entitled ***TALG-15: An Extracellular Serine Protease Overexpressed in Carcinomas,*** USSN 09/421,213 filed October 20, 1999.

We hereby state that we have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above. We acknowledge the duty to disclose all information we know to be material to patentability in accordance with Title 37, Code of Federal Regulations, §1.56(a), including information which became known to us between the filing date of the prior application and the national or PCT international filing date of this patent application.

We hereby appoint the following attorneys and/or agents to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: Dr. Martin L. McGregor, Registration No. 29,239 and Dr. Benjamin Adler, Registration No. 35,423. Address all telephone calls to telephone number 713/777-2321. Address all correspondence to, McGREGOR & ADLER, 8011 Candle Lane, Houston, TX 77071.

We hereby declare that all statements made herein of our own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

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```
                                                                *
Heps   RIVGGRDTSL GRWPWQVSL. ....RYDG.A HLCGGSLLSG DWVLTAAHCF PE....RNRV LSRWRVFAGA VAQASPHGLQ
Tadg15 RVVGGTDADE GEWPWQVSL. ....HALGQG HICGASLISP NWLVSAAHCY IDDRGFRYSD PTQWTAFLGL HDQSQRSAPG
Scce   KIIDGAPCAR GSHPWQVAL. ....LSGNQL H.CGGVLVNE RWVLTAAHC. .........K MNEYTVHLGS DTLG..DR.R
Try    KIVGGYNCEE NSVPYQVSL. ....NSGYHF ..CGGSLINE QWVVSAGHC. .........Y KSRIQVRLGE HNIEVLEG.N
Chymb  RIVNGEDAVP GSWPWQVSL. ....QDKTGF HFCGGSLISE DWVVTAAHC. ........GV RTSDVVVAGE FDQGSDEE.N
Fac7   RIVGGKVCPK GECPWQVLL. ....LVNG.A QLCGGTLINT IWVVSAAHCF DKIKNWRNLI .....AVLGE HDLSEHDGDE
Tpa    RIKGGLFADI ASHPWQAAIF AKHRRSPGER FLCGGILISS CWILSAAHCF QERFPPHHL. ....TVILGR .TYRVVPGEE

                    *
Heps   LGVQAVVYHG GYLPFRDPNS EENSNDIALV HLSS.PLPLT EYIQPVCLPA ...AGQALVD GKICTVTGWG NTQYYGQQ.A
Tadg15 VQERRLKRII SHPFFNDFTF D...YDIALL ELEK.PAEYS SMVRPICLPD ...ASHVFPA GKAIWVTGWG HTQYGGTG.A
Scce   AQRIKASKSF RHPGYSTQT. ..HVNDLMLV KLNS.QARLS SMVKKVRLPS ...RCE..PP GTTCTVSGWG TTTSPDVTFP
Try    EQFINAAKII RHPQYDRKT. ..LNNDIMLI KLSS.RAVIN ARVSTISLPT ...APP..AT GTKCLISGWG NTASSGADYP
Chymb  IQVLKIAKVF KNPKFSILT. ..VNNDITLL KLAT.PARFS QTVSAVCLPS ...ADDDFPA GTLCATTGWG KTKYNANKTP
Fac7   QSRRVAQVII P....STYVP GTTNHDIALL RLHQ.PVVLT DHVVPLCLPE RTFSERTLAF VRFSLVSGWG QLLDRGATAL
Tpa    EQKFEVEKYI VHKEFDDDTY D...NDIALL QLKSDSSRCA QESSVVRTVC LPPADLQLPD WTECELSGYG KHEALSPFYS

                                                                *
Heps   GVLQEARVPI ISNDVCNGAD FYGN..QIKP KMFCAGYPEG G......IDA CQGDSGGPFV CEDSISRTPR WRLCGIVSWG
Tadg15 LILQKGEIRV INQTTCE..N LLPQ..QITP RMMCVGFLSG G......VDS CQGDSGGPL. ..SSVEADGR IFQAGVVSWG
Scce   SDLMCVDVKL ISPQDCTKV. .YKD..LLEN SMLCAGIPDS K......KNA CNGDSGGPLV C....R.... GTLQGLVSWG
Try    DELQCLDAPV LSQAKCEAS. .YPG..KITS NMFCVGFLEG G......KDS CQGDSGGPVV C....N.... GQLQGVVSWG
Chymb  DKLQQAALPL LSNAECKKS. .WGR..RITD VMICAG..AS G......VSS CMGDSGGPLV C....QKDGA WTLVGIVSWG
Fac7   ELMVLNVPRL MTQDCLQQSR KVGDSPNITE YMFCAGYSDG S......KDS CKGDSGGP.. ..HATHYRGT WYLTGIVSWG
Tpa    ERLKEAHVRL YPSSRCTSQH LLNRT..VTD NMLCAGDTRS GGPQANLHDA CQGDSGGPLV CLN....DGR MTLVGIISWG

Heps   T.GCALAQKP GVYTKVSDFR EWIFQAIKTH SEASGMVTQL -- (SEQ ID No: 3)
Tadg15 D.GCAQRNKP GVYTRLPLFR DWIKENTGV~ ~~~~~~~~~~ -- (SEQ ID No: 2)
Scce   TFPCGQPNDP GVYTQVCKFT KWINDTMKKH R~~~~~~~~~~ -- (SEQ ID No: 4)
Try    D.GCAQKNKP GVYTKVYNYV KWIKNTIAAN S~~~~~~~~~~ -- (SEQ ID No: 5)
Chymb  SDTCS.TSSP GVYARVTKLI PWVQKILAAN ~~~~~~~~~~ -- (SEQ ID No: 6)
Fac7   Q.GCATVGHF GVYTRVSQYI EWLQKLMRSE PRPGVLLRAP FP (SEQ ID No: 7)
Tpa    .LGCGQKDVP GVYTKVTNYL DWIRDNMRP~ ~~~~~~~~~~ -- (SEQ ID No: 8
```


FIGURE 1

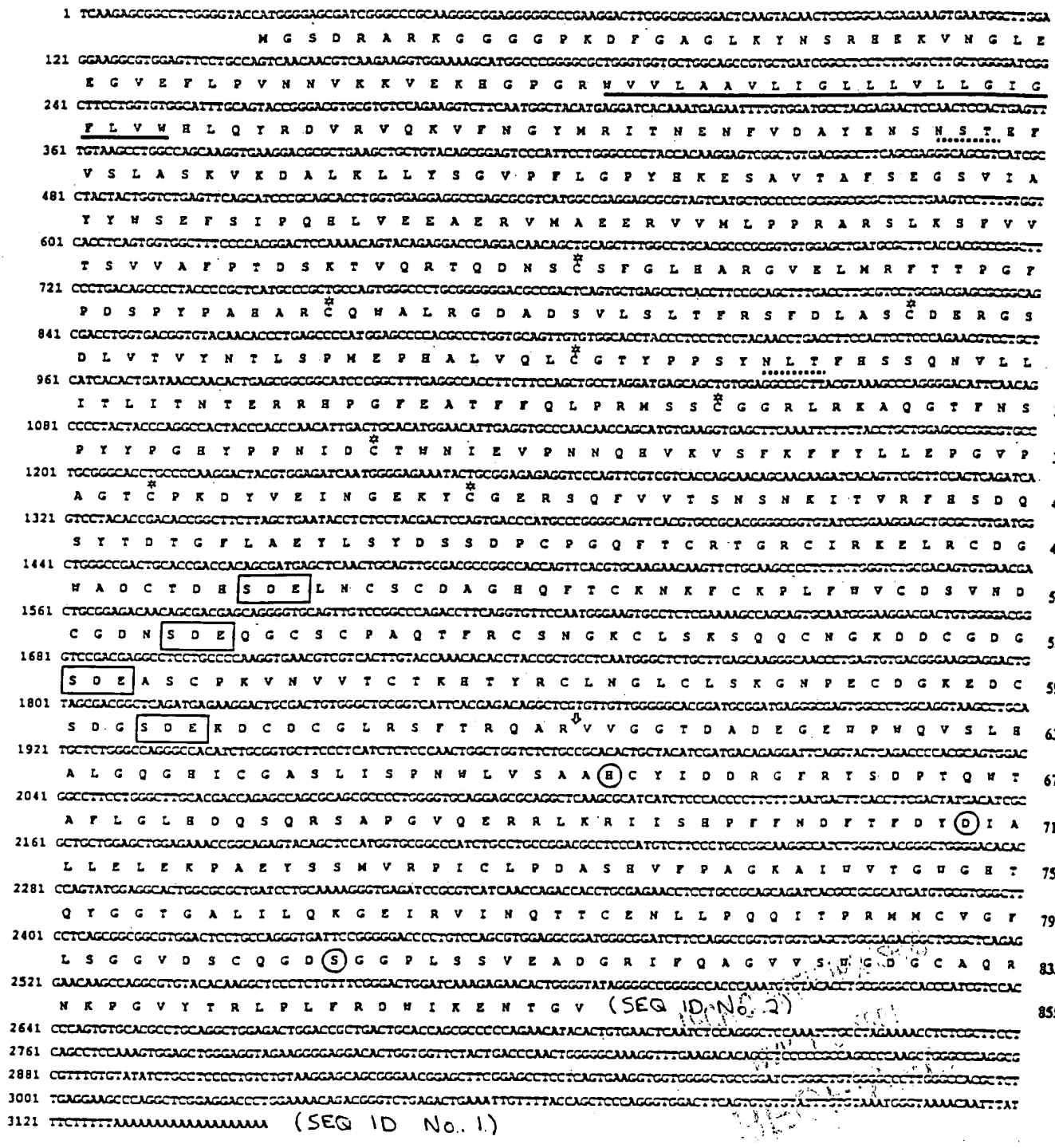
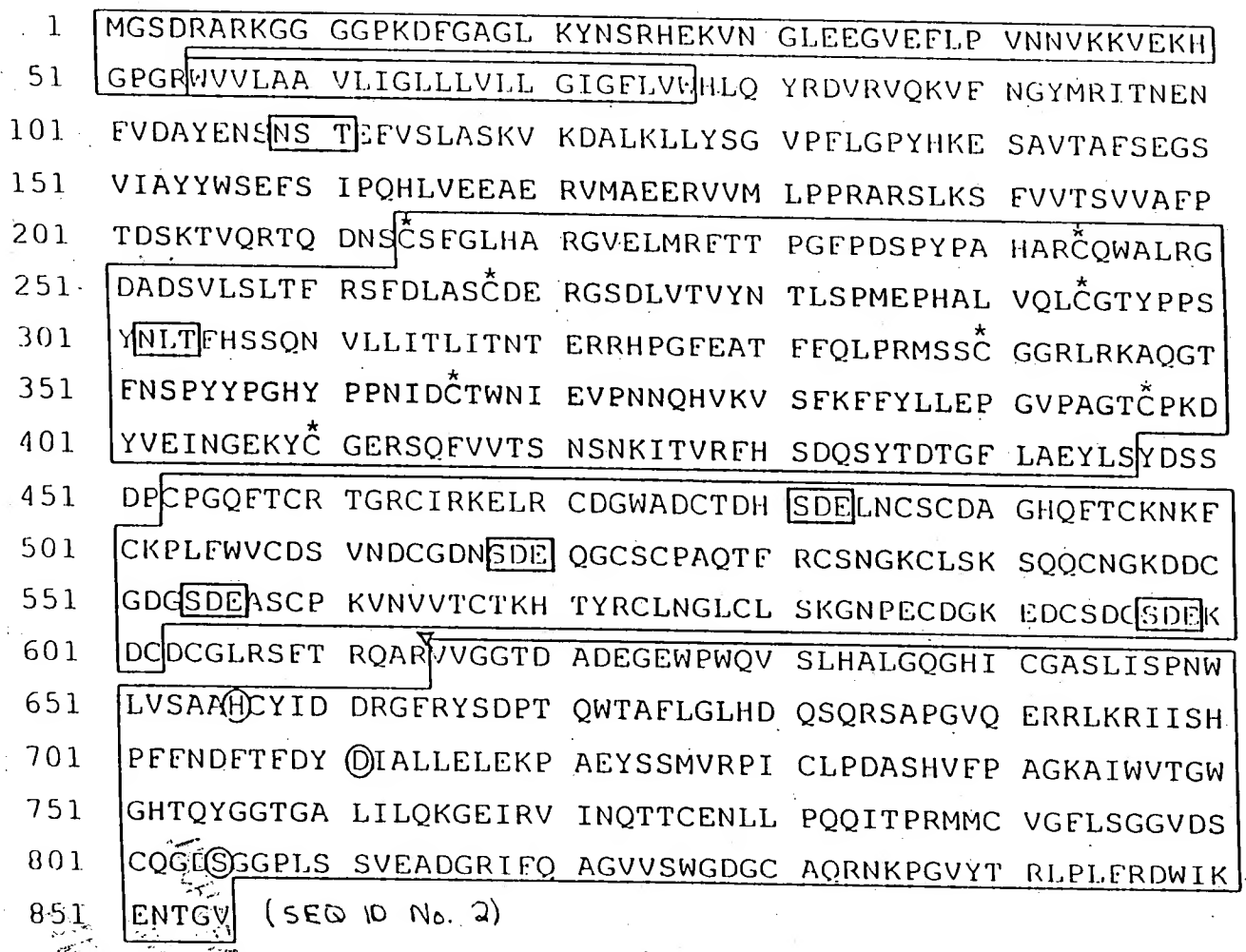


FIGURE 2



*: Conserved cysteine residue
NXT: Possible N-linked glycosylation site
SDE: Conserved SDE motif
∇: Potential cleavage site
O: Conserved amino acids of catalytic triad H, D, S

1. Cytoplasmic domain
2. Transmembrane domain
3. CUB repeat
4. Ligand-binding repeat (class A motif) of LDL receptor like domain
5. Serine protease

FIGURE 3

```
hTADG15  MGSLRARKGG GGPKDFGAGL KYNSRHEKVN GLEEGVEFLP VNNVKKVEKH  50
mEpithin ---N-G--A- --SQ------ --D--L-NM- -F-------- A--A-----R

hTADG15  GPGRWVVLAA VLIGLLLVLL GIGFLVWHLQ YRDVRVQKVF NGYMRITNEN 100
mEpithin --R-----V- --FSF--LS- MA-L----FH --N------- --HL-----I

hTADG15  FVDAYENSNS TEFVSLASKV KDALKLLYSG VPFLGPYHKE SAVTAFSEGS 150
mEpithin -L------T- ---I----Q- -E------NE --V------K ----------

hTADG15  VIAYYWSEFS IPQHLVEEAE RVMAEERVVM LPPRARSLKS FVVTSVVAFP 200
mEpithin ---------- --P--A--VD -A--V----T ------A--- --L-------

hTADG15  TDSKTVQRTQ DNSCSFGLHA RGVELMRFTT PGFPDSPYPA HARCQWALRG 250
mEpithin I-PRML---- ------A--- H-AAVT---- ----N----- ------V---

hTADG15  DADSVLSLTF RSFDLASCDE RGSDLVTVYN TLSPMEPHAL VQLCGTYPPS 300
mEpithin ---------- ----V-P--- H--------D S--------V -R----FS--

hTADG15  YNLTFHSSQN VLLITLITNT ERRHPGFEAT FFQLPRMSSC GGRLRKAQGT 350
mEpithin -----L---- -F-V------ G---L----- -----K---- --V-SDT---

hTADG15  FNSPYYPGHY PPNIDCTWNI EVPNNQHVKV SFKFFYLLEP GVPAGTCPKD 400
mEpithin -S-------- ----N----- K----RN--- R--L---VD- N--V-S-T--

hTADG15  YVEINGEKYC GERSQFVVTS NSNKITVRFH SDQSYTDTGF LAEYLSYDSS 450
mEpithin --------GS --------S- --S----H-- --H------- ---------N

hTADG15  DPCPGQFTCR TGRCIRKELR CDGWADCTDH SDELNCSCDA GHQFTCKNKF 500
mEpithin -----M-M-K ---------- -------P-Y ---RY-R-N- T-------Q-

hTADG15  CKPLFWVCDS VNDCGDNSDE QGCSCPAQTF RCSNGKCLSK SQQCNGKDDC 550
mEpithin ---------- ------G--- E------GS- K-------PQ --K-----N-

hTADG15  GDGSDEASCP KVNVVTCTKH TYRCLNGLCL SKGNPECDGK EDCSDGSDEK 600
mEpithin ---------D S----S---Y ----Q----- ---------- T---------

hTADG15  DCDCGLRSFT RQARVVGGTD ADEGEWPWQV SLHALGQGHI CGASLISPNW 650
mEpithin N--------- K--------N ---------- ---------L --------D-

hTADG15  LVSAAHCYID DRGFRYSDPT QWTAFLGLHD QSQRSAPGVQ ERRLKRIISH 700
mEpithin -------FQ- -KN-K---Y- M-------L- --K---S--- -LK-----T-

hTADG15  PFFNDFTFDY DIALLELEKP AEYSSMVRPI CLPDASHVFP AGKAIWVTGW 750
mEpithin -S-------- ---------S V---TV---- -----T---- ---------H

hTADG15  GHTQYGGTGA LILQKGEIRV INQTTCENLL PQQITPRMMC VGFLSGGVDS 800
mEpithin ---KE----- ---------- -------D-M ---------- ----------

hTADG15  CQGDSGGPLS SVEADGRIFQ AGVVSWGDGC AQRNKPGVYT RLPLFRDWIK 850
mEpithin ---------- -A-K---M-- -------E-- ---------- ---CSSGLDQ

hTADG15  ENTGV* (SEQ ID No. 2)                                    900
mEpithin RAHWGIAAWT DSRPQTPTGM PDMHTWIQER NTDDIYAVAS PPQHNPDCEL

hTADG15
mEpithin HP (SEQ ID No. 10)                                      902
```

FIGURE 11

```
LOCUS       HSU20428     2900 bp    mRNA            PRI       17-MAR-1997
DEFINITION  Human SNC19 mRNA sequence.
ACCESSION   U20428
NID         g1890631
KEYWORDS    .
SOURCE      human.
ORGANISM  Homo sapiens
          Eukaryotae; mitochondrial eukaryotes; Metazoa; Chordata;
          Vertebrata; Eutheria; Primates; Catarrhini; Hominidae; Homo.
REFERENCE   1  (bases 1 to 2900)
AUTHORS   Zheng,S., Cai,X., Geng,L., Cao,J., Zheng,L. and Zhi,I.Z.
TITLE     SNC19 gene in Homo sapiens
JOURNAL   Unpublished
REFERENCE   2  (bases 1 to 2900)
AUTHORS   Zheng,S.
TITLE     Direct Submission
JOURNAL   Submitted (30-JAN-1995) Shu Zheng, Cancer Institute, Zhejiang
          Medical University, Hangzhou, 310031, Peoples Republic of China
```

```
TADG15: TCAAGAGCGGCCTCGGGGTACCATGGGGATTGATCGGGCCCTGCAAGGGGGAGGGGGCCCGAAGGACTTCGGCGCGGGACT 81

SNC19:  ...............................................................................

 82 CAAGTACAACTCCCGGCACGAGAAAGTGAATGGCTTGGAGGAAGGCGTTGAGTTCCTTCAGTGAACAACGTCAAGAAGGTGGAAAGCATGGCCCGGGG 181

    ...............................................................................

182 CGCTGGGTGGTGCTGGCAGCCGTGCTGATCGGCCTCCTCTTGGTCTTGGTTGGGATCGGCTTCCTGGTGTGGCATTTGCAGTACCGGGACGTGCGTGTCC 281
    ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
  1 CGCTGGGTGGTGCTGGCAGCCGTGCTGATCGGCCTCCTCTTGGTCTTGGTTGGGATCGGCTTCCTGGTGTGGCATTTGCAGTACCGGGACGTGCGTGTCC 100

282 AGAAGGTCTTCAATGGCTACATGAGGATCACAAATGAGAATTTTGTGGATGCCTACGAGAACTCCAACTCCACTGAGTTTGTAAGCCTGGCCAGCAAGGT 381
    ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
101 AGAAGGTCTTCAATGGCTACATGAGGATCACAAATGAGAATTTTGTGGATGCCTACGAGAACTCCAACTCCACTGAGTTTGTAAGCCTGGCCAGCAAGGT 200

382 GAAGGACGCGCTGAAGCTGCTGTACAGCGGAGTCCCATTCCTGGGCCCTTACGACAAGGAGTCGGCTGTGACGGCCTTCAGCGAGGGCAGCGTCATCGCC 481
    ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
201 GAAGGACGCGCTGAAGCTGCTGTACAGCGGAGTCCCATTCCTGGGCCCTTACGACAAGGAGTCGGCTGTGACGGCCTTCAGCGAGGGCAGCGTCATCGCC 300

482 TACTACTGGTCTGAGTTCAGCATCCCGCAGCACCTGGTGGAGGAGGCCGAGCGCGTCATGGCCGAGGAGCGCGTAGTCATGCTGCCCCCGCGGGCGCGCT 581
    ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
301 TACTACTGGTCTGAGTTCAGCATCCCGCAGCACCTGGTTGAGGAGGCCGAGCGCGTCATGGCC.AGGAGCGCGTAGTCATGCTGCCCCCGCGGGCGCGCT 399

582 CCCTGAAGTCCTTTGTGGTCACCTCAGTGGTGGCTTTCCCCACGGACTCCAAAACAGTACAGAGGACCCAGGACAACAGCTGCAGCTTTGGCCTGCACGC 681
    ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
400 CCCTGAAGTCCTTTGTGGTCACCTCAGTGGTGGCTTTCCCCACGGACTCCAAAACAGTACAGAGGACCCAGGACAACAGCTGCAGCTTTGGCCTGCACG. 498

682 CCGCGGTGTGGAGCTGATGCGCTTCACCACGCCCGGCTTCCCTGACAGCCCCTACCCCGCCTCATGCCGCTGCCAGTGGGCCCTGCGGGGGGACGCCGAC 781
    ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
499 CCGCGGTGTGGAGCTGATGCGCTTCACCACG.CCGGCTTCCCTGACAGCCCCTACCCCGCCTCATGCCGCTGCCAGTGGGC....TGCGGGGACG.CGAC 592

782 TCAGTGCTGAGCCTCACCTTC.....CGCAGCTTTGACCTTGCGTCCTCCGACGAGCGCGGCAGCGACCTGGTGACGGTGTACAACACCCTGAGCCCCAT 876
    ||||||||||| | |   |     |||||| |||||   || |   ||||||||||||||||||||||||||||||||||||||||||||||||||||||
593 GCAGTGCTGAGCTACTCGAGCTGACTCGCAGC.TTGACTGCGCCT....CGACGAGCGCGGCAGCGACCTGGTGAC.GTGTACAACACCCTGAGCCCCAT 686

877 GGAGCCCCACGCCCTGGTGCAGTTGTGTGGCACCTACCCTCCCTCCTACGACCTGACCTTCCACT.CCTCCCA.GAACGTCCTGCTCATCACACTGATAA 974
    |||||||||||| |||||||    ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
687 GGAGCCCCACG.CCTGGTG..AGTGTGTGGCACCTACCCTCCCTCCTACGACCTGACCTTCCACTTCCTCCCACGAACGTCCTGCTCATCACACTGATAA 783

975 CCAACACTGAGCGGCGGCATCCCGGCTTTGAGGCCACCTTCTTCCAGCTCCCTAGGATGAGCAGCTGTGGAGGCCGCTTACGTAAAGCCCAGGGGACATT 1074
    ||||||||||| ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
784 CCAACACTGA..CGCGGCATCCCGGCTTTGAGGCCACCTTCTTCCAGCTCCCTAGGATGAGCAGCTGTGGAGGCCGCTTACGTAAAGCCCAGGGGACATT 881

1075 CAACAGCCCCTACTACCCAGGCCACTACCCACCCAACATTGACTGCACATCGAAACATTGAGGTGCCCAACAACCAGCATGTGAAGGTGAGCTTCAAATTC 1174
     ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 882 CAACAGCCCCTACTACCCAGGCCACTACCCACCCAACATTGACTGCACATCGAAACATTGAGGTGCCCAACAACCAGCATGTGAAGGTGCGCTTCAAATTC 981

1175 TTCTACCTGCTGGAGCCCGGCGTGCCTGCGGGCACCTGCCCCAAGGACTACGTGGAGATCAATGGGGAGAAATACTGCGGAGAGAGGTCCCAGTTCGTCG 1274
     ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
 982 TTCTACCTGCTGGAGCCCGGCGTGCCTGCGGGCACCTGCCCCAAGGACTACGTGGAGATCAATGGGGAGAAATACTGCGGAGAGAGGTCCCAGTTCGTCG 1081

1275 TCACCAGCAACAGCAACAAGATCACAGTTCGCTTCCACTCAGATCAGTCCTACACCGACACCGGCTTCTTAGCTGAATACCTGTCCTACGACTCCAGTGA 1374
     ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
1082 TCACCAGCAACAGCAACAAGATCACAGTTCGCTTCCACTCAGATCAGTCCTACACCGACACCGGCTTCTTAGCTGAATACCTGTCCTACGACTCCAGTGA 1181

1375 CCCATGCCCCGGGGCAGTTCACGTGCCGCACGGGGCGGTGTATCCGGAAGGAGCTGCGCCTGTGATGGCTGGGCCGACTGCACCGACCACAGCGATGAGCTC 1474
     ||||||||||| |||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
1183 CCCATGCCCCGGGGCAGTTCACGTGCCGCACGGGGCGGTGTATCCGGAAGGAGCTGCGCCTGTGATGGCTGGG.CGACTGCACCGACCACAGCGATGAGCTC 1290

1475 AACTGCAGTTGCGACGCCGGCCACCAGTTCACGTGCAAGAACAAGTTTTCCAAGCCCCTCTTCTGGGTCTGCGACAGTGTGAACGACTGCGGAGACAACA 1574
     ||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
1291 AACTGCAGTTGCGACGCCGGCCACCAGTTCACGTGCAAGAGCAAGTTTTCCAAG...CTCTTCTGGGTCTGCGACAGTGTGAACGACTGCGGAGACAACA 1377
```

FIGURE 12 Figure 12